REMARKS

Reconsideration and allowance of this application are respectfully requested. New claims 39 and 40 have been added. Claims 16-38 have been cancelled. Claims 1-15, 39 and 40 are now pending in the application. The rejections are respectfully submitted to be obviated in view of the remarks presented herein.

Rejection Under 35 U.S.C. § 102(b) - Estakhri et al.

Claims 1-3, 4, 11 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Estakhri et al. (U.S. Patent Number 5,845,313; hereinafter "Estakhri"). The rejection is respectfully traversed.

Regarding independent claim 1, the claimed invention relates to writing of data to a flash memory. A request is received to write predetermined data to a page to which data has been written. The predetermined data is written to a log block corresponding to a data block containing the page. A request to write the predetermined data to the page is received again, and the predetermined data is written to an empty free page in the log block.

Turning to the cited art, Estakhri describes a direct logical block addressing flash memory, in which "no erase is performed and the modified data file is written onto an empty portion of the mass storage" (column 4, lines 6-8). As shown in Figures 1 and 2, the mass storage device contains a collection of information flags stored for each nonvolatile memory location (106). A controller (304) shown in the system of Figure 3 "determines the first available physical block for storing the data. The RAM location (102) corresponding to the logical block address selected by the host is written with the physical block address where the

data is actually stored within the nonvolatile memory array" (column 5, lines 10-15). The system of Estakhri avoids an erase-before-write cycle by locating a block having an unset used/free flag (112) in volatile memory (100), indicating that the associated block is erased (column 5, lines 31-34). The used/free flag (112) for the new block is set and the data is stored in the new physical block location in the nonvolatile array (104) (column 5, lines 34-38). "The address of the new physical block location is also stored into the RAM location (102) corresponding [to] the logical block address, thereby writing over the previous physical block location in [RAM location] (102). Next, the system sets the old/new flag (110) of the previous version of the [data] indicating that this is an old unneeded version" (column 5, lines 38-44).

The Examiner maintains that Estakhri teaches each feature of the claimed invention. However, Estakhri does not write predetermined data to a log block corresponding to a data block containing the page, and write the predetermined data to an empty free page in the log block. In addition, the Applicants' specification describes on page 3, lines 6-15, the flash memory storage architecture of Estakhri in which a linear address conversion table performs a direct address conversion and is constructed in a special RAM by scanning a logical address stored in a flash memory during a system reset. The specification outlines the deficiencies of Estakhri, wherein a RAM of a large storage capacity is required to store the address conversion table, which is too large for a small-scale system having few resources such as mobile equipment.

Estakhri shows in Figures 4-8, a write operation process in volatile memory. Data is written to the first unused location in the non-volatile memory (column 6, lines 44-46). Flags for

each RAM location are set to indicate whether the location is old/new, used/free, or defective. Data to be stored in a logical block address are written, and a corresponding physical block address of the first empty location is stored. Thus, the data in Estakhri is not written to a free page in a log block nor is data written to a log block corresponding to a data block containing the page of written data. At least by virtue of the aforementioned differences, the invention defined by claim 1 is patentable over Estakhri. Claims 2 and 3 are dependent claims including all of the limitations of independent claim 1, which, as established above, distinguishes over Estakhri. Therefore, claims 2 and 3 are patentably distinguished over Estakhri for at least the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) are respectfully requested.

Regarding independent claim 4, the claimed invention also relates to writing of data to a flash memory. A log block 1-1, corresponding to a first data block containing the page to which a request to write predetermined data is received, is allocated. The predetermined data is written to an empty page in the log block 1-1. A request to write the predetermined data to the page is received again, and the predetermined data is written to an empty free page in the log block 1-1.

As discussed above, Estakhri does write predetermined data to a log block 1-1 corresponding to a data block containing the page, and write the predetermined data to an empty free page in the log block 1-1. At least by virtue of the aforementioned differences, the invention defined by claim 4 is also patentable over Estakhri. Claims 11 and 15 are dependent claims including all of the limitations of independent claim 4, which, as established above, distinguishes over Estakhri. Therefore, claims 11 and 15 are patentably distinguished over Estakhri for at least

the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) are respectfully requested.

Newly Added Claims

Claims 39 and 40 are newly added by this Amendment and are believed to be in condition for allowance.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS

FIGS. 10-12 and 14 have been amended to correct spelling errors. Specifically, "valid" and "invalid" were misspelled in FIGS. 10-12, and "pointer" was misspelled in FIG. 14.

Attachment: Replacement Sheets (FIGS. 10-12 and 14)